



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,805	06/21/2001	James William Casper	OC527	5082

24959 7590 09/15/2004

PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
ONE PPG PLACE
PITTSBURGH, PA 15272

EXAMINER

FLETCHER III, WILLIAM P

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,805

Applicant(s)

CASPER, JAMES WILLIAM

Examiner

William P. Fletcher III

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/16/2004 has been entered.

Response to Arguments

2. Applicant's arguments filed in the amendment and response submitted with the above-mentioned RCE have been fully considered but they are not persuasive.

Applicant argues that the cited references do not teach a water-in-oil emulsion. The examiner disagrees. Because applicant has provided no explicit definition of the term "water-in-oil emulsion," the examiner has interpreted it consistent with the plain meaning given to the term by those of ordinary skill in the art. See MPEP 2111.01. According to the prior art (see Yu et al. US 4,252,796 A at 1:32-38, for example) a water-in-oil emulsion is an emulsion with oil or solvent as the continuous phase and water or aqueous solution as the disperse phase. Because Schimmel teaches a composition in which a water-borne (aqueous) pigment dispersion, comprising pigment dispersed in water, is dispersed in a solution of a polymer in an organic solvent (abstract and 7:30-12:58), it is the examiner's position that this reference teaches a water-in-oil emulsion. Consequently, applicant's argument is not persuasive.

Applicant argues that, in teaching a mixture of water and water-reducible organic solvents, Schimmel does not teach an "organic solvent" as required by the claim. The examiner

Art Unit: 1762

disagrees. Firstly, applicant's disclosure at page 4 of the specification reads: "Organic solvents include any non-aqueous solvents which can be used to dissolve the polymer and which have little or no solubility in water." From this, it is understood that applicant's organic solvents suitable for use in applicant's invention *include* those having little or no solubility in water. Nevertheless, this disclosure does not represent a definition set-forth with "reasonable clarity, deliberateness, and precision" so as to apprise one of ordinary skill in the art of the exclusion of all other organic solvents from the genus. See MPEP 2111.02. Secondly, the water-reducible organic solvents disclosed by Schimmel are *optional* diluents. Applicant's attention is directed to 7:65-6:64 and 11:23-12:15. Said optional diluents are not limited to water-reducible organic solvents but may also be organic solvents. Indeed, organic solvents are preferred. Applicant is reminded that Applicant is reminded that references are part of the literature of the art, relevant for all they contain, and that disclosed examples do not constitute a teaching away from a broader disclosure. See MPEP 2123. Consequently, applicant's argument is not persuasive.

Applicant continues to argue the propriety of the combination of Schimmel and Benefiel. The examiner continues to disagree with these arguments. As an initial point, the examiner again stresses that Benefiel discloses that a carboxy-hydroxy acrylic polymer may be used as a binder in both a pigmented base- and a transparent top-coating composition. Passages in support of this have been repeatedly cited in prior actions. The examiner reproduces the clearest teaching below:

"Another type of film-forming material useful in forming the transparent coating as well as the base coat of this invention is a combination of a cross-linking agent and a carboxy-hydroxy acrylic polymer" (2:61-71).

Art Unit: 1762

The examiner's position is clearly and explicitly supported by both this and previously-cited disclosures from Benefiel.

In the prior Office action, the examiner established the motivation for combining Benefiel with Schimmel:

"Since Schimmel gives, as an example of the polymer, an acrylic polymer, but does not give further detail, one of ordinary skill in the art would have looked to the prior art for teachings of suitable acrylic resins. In view of the teaching of Benefiel, it would have been obvious to one of ordinary skill in the art to select, as the acrylic resin, a carboxy-hydroxy resin, as suggested by Benefiel. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of greater control over pigment dispersion and orientation in the composition" (paragraph 4).

From the disclosure of Benefiel, two things are established: (1) that the carboxy-hydroxy acrylic copolymer-based, pigment-containing coating composition of Benefiel advantageously gives greater control over pigment orientation and dispersion; and (2) that such a carboxy-hydroxy acrylic binder is art-recognized as a suitable acrylic binder for a pigmented base-coating composition.

With respect to (1), while applicant correctly notes that this advantage is disclosed in relation to the clear-coat embodiment of Benefiel, it is clearly not limited thereto. It is "especially" an advantage in the clear-coat embodiment (see 6:37-41), but because the base- and top-coat formulations are substantially the same (the former additionally containing a colorant), pigment orientation and dispersion are concerns in all pigmented coating compositions, and because Benefiel discloses that the base- and clear-coats contain the same pigments (i.e., aluminum) the binders of Benefiel, one of ordinary skill would reasonably expect a base-coat

formulation having Benefiel's carboxy-hydroxy acrylic copolymer as binder to successfully provide the disclosed pigment orientation and dispersion control.

With respect to (2), the examiner notes that selection of a known material (carboxy-hydroxy acrylic copolymer) based on its suitability for its intended use (pigmented, acrylic base-coat binder) has supported a prima facie case of obviousness. See *Sinclar & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945); *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960); and *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

For these reasons, it would have been obvious to one of ordinary skill in the art to select, as the acrylic resin, a carboxy-hydroxy acrylic copolymer resin as suggested by Benefiel. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully achieving greater control over pigment dispersion and orientation in the composition. Consequently, applicant's argument is not persuasive.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-6, and 8-15, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schimmel et al. (US 5,585,427 A) in view of Benefiel et al. (US 3,693,147 A).**

Schimmel teaches a composition in which a water-borne pigment dispersion, comprising pigment dispersed in water, is dispersed in a solution of a polymer in an organic solvent [abstract and c. 7, l. 30 – c. 12, l. 58]. Non-limiting examples of the polymer are: acrylic, polystyrene, acrylonitrile, polyester, epoxy, polyamide, aminoplast, and polyurethane polymers [c. 10, ll. 36 – 42]. As noted in paragraph 2, it is the examiner's position that this reference teaches a water-in-oil emulsion.

Schimmel does not explicitly state that the polymer has functional groups and hydrophilic groups.

Benefiel teaches a carboxy-hydroxy acrylic copolymer as a binder for a pigmented coating composition [c. 2, l. 62 – c. 4, l. 15]. Such a binder advantageously gives control over pigment orientation and dispersion [c. 6, ll. 37 – 64].

Since Schimmel gives, as an example of the polymer, an acrylic polymer, but does not give further detail, one of ordinary skill in the art would have looked to the prior art for teachings of suitable acrylic resins. In view of the teaching of Benefiel, it would have been obvious to one of ordinary skill in the art to select, as the acrylic resin, a carboxy-hydroxy resin, as suggested by Benefiel. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of greater control over pigment dispersion and orientation in the composition.

Carboxyl groups and hydroxyl groups read on functional and hydrophilic groups, respectively, as these groups are defined by applicant at pp. 4 – 5 of the spec.

The composition of Schimmel may also contain (i.e., it is not required) a cross-linker, a specific example of which is isocyanate [c. 10, ll. 10 – 50 – 55]. Schimmel does not distinguish an activated composition from a non-activated one, but does encourage the packaging of the

coating composition in separate components. It is well-known in the coating art to keep mutually reactive binder and cross-linker components of a coating composition separate prior to application. Doing so prevents increases storage life by preventing premature cross-linking. Consequently, it would have been obvious to store the binder portion separate from the cross-linker and to add the cross-linker to the binder prior to coating (thereby forming an “activated” composition). Further, the composition of Schimmel is coated onto a substrate and cured [c. 12, ll. 25 – 58].

Schimmel does not teach any specific acid or OH numbers. Benefiel teaches, however, that various examples of binder resins with acid numbers and OH numbers within applicant’s claimed ranges [see Examples]. Consequently, it would have been obvious to one of ordinary skill in the art to utilize carboxy-hydroxy resins with these physical properties. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of utilizing a polymer with physical properties suitable for preparing the composition of Schimmel.

With respect to claims 13 and 14, the molecular weight of a polymer is a physical property that it is well known to adjust in the preparation of coating compositions because molecular weight is a result-effective property, effecting properties of the composition such as viscosity and flowability. Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed molecular weight ranges, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation [see MPEP § 2144.05(II)].

With respect to claims 10 – 12, it is well-known to prepare acrylic polymers from vinyl monomers and it would have been obvious to do so. As to the T_g values claimed, these are also

Art Unit: 1762

physical properties that are result-effective, effecting the flowability and curing of the composition. Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed molecular weight ranges, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation [see MPEP § 2144.05(II)].

Allowable Subject Matter

5. Claims 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests the composition of claim 1 in which the hydrophilic groups are amine groups.

Conclusion

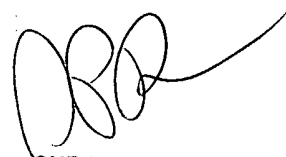
Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WPF 9/13/2004

William P. Fletcher III
Examiner
Art Unit 1762



SHROVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1760